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FORM PTO-1449 U.S.		DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTY. DOCKET NO. MEGAN 100 CIP		SERIAL NO. 08/761,769	
<b>MATERIAL INFORMATION SHEET</b> (Use several sheets if necessary)				APPLICANT Roy Curtiss, III and Steven A. Tingo			
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OTHER PRIOR ART (Including Author, Title, Date, Pertinent Pages, Inc.)							
VR	AR	Arthur, M, et al., "Characterization of Tn1546, a Tn3-related transposon conferring glycopeptide resistance by synthesis of depsipeptide peptidoglycan precursors in <i>Enterococcus faecium</i> BM4147", <i>J Bacteriol</i> 175:(1):117-27 (January, 1993)					
VR	AS	Baril, C, et al., "Cloning of <i>dapD</i> , <i>aroD</i> and <i>asd</i> of <i>Leptospira interrogans</i> serovar icterohaemorrhagiae, and nucleotide sequence of the <i>asd</i> gene", <i>J Gen Microbiol</i> 138:(Pt 1):47-53 (January, 1992)					
VR	AT	Begg, K.J, et al., "A new <i>Escherichia coli</i> cell division gene, <i>ftsK</i> ", <i>J Bacteriol</i> 177:(21):6211-22 (November, 1995)					
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VR	AR	Boulc, P, <i>et al.</i> , "The Escherichia coli <i>lov</i> gene product connects peptidoglycan synthesis, ribosomes and growth rate", <i>EMBO</i> 8(1):317-23 (January, 1989)					
VR	AS	Bouvier, J, <i>et al.</i> , "Nucleotide sequence and expression of the Escherichia coli <i>dapB</i> gene", <i>J Biol Chem</i> 259(23):14829-34 (December 10, 1984)					
VR	AT	Brown, ED, <i>et al.</i> , "MurA (MurZ), the enzyme that catalyzes the first committed step in peptidoglycan biosynthesis, is essential in Escherichia coli", <i>J Bacteriol</i> 177:(14):4194-7 (July, 1995)					
VR	AR	Bugg, TD, <i>et al.</i> , "Molecular basis for vancomycin resistance in Enterococcus faecium BM4147: biosynthesis of a depsipeptide peptidoglycan precursor by vancomycin resistance proteins VanH and VanA", <i>Biochemistry</i> 30:(43):10408-15 (October 29, 1991)					
VR	AS	Buist, G, <i>et al.</i> , "Molecular cloning and nucleotide sequence of the gene encoding the major peptidoglycan hydrolase of Lactococcus lactis, a muramidase needed for cell separation", <i>J Bacteriol</i> 177:(6):1554-63 (March, 1995)					
VR	AT	Cardineau and Curtiss, "Nucleotide Sequence of the <i>asd</i> Gene of Strptococcus Mutans," <i>The Journal of Biological Chem.</i> , 262(7):3344-3353 (1987)					
VR	AR	Chakraborti, AS, <i>et al.</i> , "Accumulation of a murein-membrane attachment site fraction when cell division is blocked in <i>lkyD</i> and <i>cha</i> mutants of Salmonella typhimurium and Escherichia coli", <i>J Bacteriol</i> 168(3):1422-9 (December, 1986)					
VR	AS	Chen, NY, <i>et al.</i> , "Organization and nucleotide sequence of the Bacillus subtilis diaminopimelate operon, a cluster of genes encoding the first three enzymes of diaminopimelate synthesis and dipicolinate synthase", <i>J Biol Chem</i> 268(13):9448-65 (May 5, 1993)					
VR	AT	Cirillo, JD, <i>et al.</i> , "Genetic determination of the meso-diaminopimelate biosynthetic pathway of mycobacteria", <i>J Bacteriol</i> 176:(14):4424-9 (July, 1994)					
VR	AR	*Collins, MD, <i>et al.</i> , "Phylogenetic analysis of a new LL-diaminopimelic acid-containing coryneform bacterium from herbage, Nocardioides plantarum sp. nov.", <i>Int J Syst Bacteriol</i> 44:(3):523-6 (July, 1994)					
VR	AS	Contreras, A., <i>et al.</i> , "Conditional-Suicide Containment System for Bacteria Which Mineralize Aromatics," <i>Applied and Environmental Microbiology</i> , 57(5):1504-1508 (May, 1991)					
VR	AT	Curtiss, R., <i>et al.</i> , "Live Oral Avirulent Salmonella Vaccines," <i>Veterinary Microbiology</i> 37:376-405 (1993)					
VR	AR	Curtiss, R., <i>et al.</i> , "Nonrecombinant and Recombinant Avirulent Salmonella Vaccines," <i>Recombinant and Synthetic Vaccines</i> , 340-351 (Narosa Publishing House, G.P. Talwar <i>et al.</i> Eds. 1994)					
VR	AS	Curtiss, R., <i>et al.</i> , "Nonrecombinant and Recombinant Avirulent Salmonella Live Vaccines for Poultry," <i>Colonization Control of Human Bacterial Enteropathogens in Poultry</i> , 169-198 (Academic Press, Inc., 1991)					
VR	AT	Curtiss and Tinge, "Recombinant Avirulent Salmonella Vaccines and Prospects for an Antifertility Vaccine," <i>Local Immunity in Reproductive Tract Tissues</i> , pp459-476 (Oxford University Press, Griffin & Johnson, eds., 1993)					
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VR	AR	Curtiss, R 3d, <i>et al.</i> , "Stabilization of recombinant avirulent vaccine strains in vivo", <i>Res Microbiol</i> 141(7-8):797-805 (September-October, 1990)					
VR	AS	Dai, D, <i>et al.</i> , "murH, a new genetic code locus in Escherichia coli involved in cell wall peptidoglycan biosynthesis", <i>J Bacteriol</i> 170(5):2197-201 (May, 1988)					
VR	AT	de Jonge, BL, <i>et al.</i> , "Altered muropeptide composition in Staphylococcus aureus strains with an inactivated femA locus", <i>J Bacteriol</i> 175(9):2779-82 (May, 1993)					
VR	AR	*Degryse, E, "Stability of a host-vector system based on complementation of an essential gene in Escherichia coli", <i>J Biotechnol</i> 18(1-2):29-39 (April, 1991)					
VR	AS	Degryse, E, "Development of stable, genetically well-defined conditionally viable Escherichia coli strains", <i>Mol Gen Genet</i> 227(1):49-51 (May, 1991)					
VR	AT	Deich, RA, <i>et al.</i> , "Cloning of genes encoding a 15,000-dalton peptidoglycan-associated outer membrane lipoprotein and an antigenically related 15,000-dalton protein from Haemophilus influenzae", <i>J Bacteriol</i> 170(2):489-98 (February, 1988)					
VR	AR	Doggett, T., <i>et al.</i> , "Immune Responses to SpaA-Expressing Recombinant Salmonella", <i>Infect. Immun.</i> 61:1859-1866 (1993)					
VR	AS	Doublet, P, <i>et al.</i> , "The murl gene of Escherichia coli is an essential gene that encodes a glutamate racemase activity", <i>J Bacteriol</i> 175(10):2970-9 (May, 1993)					
VR	AT	Evers, S, <i>et al.</i> , "Sequence of the vanB and ddl genes encoding D-alanine:D-lactate and D-alanine:D-alanine ligases in vancomycin-resistant Enterococcus faecalis V583", <i>Gene</i> 140(1):97-102 (March 11, 1994)					
VR	AR	Fralick, JA, <i>et al.</i> , "Studies on the expression of outer membrane protein 2 in escherichia coli", <i>Mol Gen Genet</i> 188(1):139-42 (1982)					
VR	AS	Fuqua, WC, <i>et al.</i> , "Quorum sensing in bacteria: the LuxR-LuxI family of cell density-responsive transcriptional regulators", <i>J Bacteriol</i> 176(2):269-75 (January, 1994)					
VR	AT	Galan, JE, <i>et al.</i> , "Cloning and characterization of the asd gene of Salmonella typhimurium: use in stable maintenance of recombinant plasmids in Salmonella vaccine strains", <i>Gene</i> 94(1):29-35 (September 28, 1990)					
	AR	*Garrity, GM, <i>et al.</i> , "Genetic relationships among actinomycetes that produce the immunosuppressant macrolides FK506, FK520/FK523 and rapamycin", <i>J Ind Microbiol</i> 12(1):42-7 (January, 1993)					
VR	AS	Gerdes, K., <i>et al.</i> , "Unique Type of Plasmid Maintenance Function: Postsegregational Killing of Plasmid-Free Cells," <i>Proc. Natl. Acad. Sci. USA</i> , 83:3116-3120 (May, 1986)					
VR	AT	Giam, CZ, <i>et al.</i> , "Characterization of a novel lipoprotein mutant in Escherichia coli", <i>J Biol Chem</i> 259(9):5601-5 (May 10, 1984)					
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VR	AR	Goodell, EW, et al., "Uptake of cell wall peptides by Salmonella typhimurium and Escherichia coli", <i>J Bacteriol</i> 169:(8):3861-5 (August, 1987)			
VR	AS	Gray, KM, et al., "Interchangeability and specificity of components from the quorum-sensing regulatory systems of Vibrio fischeri and Pseudomonas aeruginosa", <i>J Bacteriol</i> 176:(10):3076-80 (May, 1994)			
VR	AT	Harkness, RE, et al., "In vitro peptidoglycan synthesis by envelopes from Escherichia coli tolM mutants is inhibited by colicin M", <i>J Bacteriol</i> 172:(1):498-500 (January, 1990)			
VR	AR	Hassan, J., et al., "Virulent Salmonella Typhimurium Induced Lymphocyte Depletion and Immunosuppression in Chickens," <i>Infect. Immun.</i> , 62:2027-2036 (1994)			
VR	AS	Hassan, J., et al., "Effect of Infective Dose on Humoral Immune Responses and Colonization in Chickens Experimentally Infected with Salmonella Typhimurium," <i>Avian Diseases</i> , 37:19-26 (1993)			
VR	AT	Haziza, C, et al., "Identification of the promoter of the asd gene of Escherichia coli using in vitro fusion with the lac operon", <i>Biochimie</i> 64:(3):227-30 (March, 1982)			
VR	AR	Haziza, C, et al., "Nucleotide sequence of the asd gene of Escherichia coli: absence of a typical attenuation signal", <i>EMBO J</i> 1(3):379-84 (1982)			
NR	AS	Henze, J, et al., "Influence of femB on methicillin resistance and peptidoglycan metabolism in Staphylococcus aureus", <i>J Bacteriol</i> 175:(6):1612-20 (March, 1993)			
VR	AT	Ho, HT, et al., "UDP-N-acetylmuramyl-L-alanine functions as an activator in the regulation of the Escherichia coli glutamate racemase activity", <i>Biochemistry</i> 34(8):2464-70 (February 28, 1995)			
VR	AR	Hourdou, ML, et al., "Characterization of the sporulation-related gamma-D-glutamyl-(L)meso-diaminopimelic-acid-hydrolysing peptidase I of Bacillus sphaericus NCTC 9602 as a member of the metallo(zinc) carboxypeptidase A family. Modular design of the protein", <i>Biochem J</i> 292:(Pt 2):563-70 (June 1, 1993)			
VR	AS	Jagusztyn-Krynicka, EK, et al., "E. coli Heat-Labile Toxin Subunit B Fusions with Streptococcus Sobrinus Antigenes Expressed by Salmonella Typhimurium Oral Vaccine Strains: Importance of the Linker for Antigenicity and Biological Activities of the Hybrid Proteins," <i>Infect. Immun.</i> , 61:1004-1015 (1993)			
VR	AT	Knudsen and Karlstrom, "Development of Efficient Suicide Mechanisms for Biological Containment of Bacteria," <i>Applied and Environmental Microbiology</i> , 57(1):85-92 (January, 1991)			
VR	AR	Kusser, W, et al., "Involvement of the relA gene in the autolysis of Escherichia coli induced by inhibitors of peptidoglycan biosynthesis", <i>J Bacteriol</i> 164(2):861-5 (November, 1985)			
VR	AS	Latifi, A, et al., "Multiple homologues of LuxR and LuxI control expression of virulence determinants and secondary metabolites through quorum sensing in Pseudomonas aeruginosa PA01", <i>Mol Microbiol</i> 17:(2):333-43 (July, 1995)			
VR	AT	Maidhof, H, et al., "femA, which encodes a factor essential for expression of methicillin resistance, affects glycine content of peptidoglycan in methicillin-resistant and methicillin-susceptible Staphylococcus aureus strains", <i>J Bacteriol</i> 173:(11):3507-13			
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VR	AR	Maruyama, IN, et al., "Determination of gene products and coding regions from the murE-murF region of Escherichia coli", <i>J Bacteriol</i> 170:(8):3786-8 (August, 1988)					
VR	AS	McCarter, LL, "MotY, a component of the sodium-type flagellar motor", <i>J Bacteriol</i> 176:(14):4219-25 (July, 1994)					
VR	AT	McEwen, J. et al., "Synthesis of outer membrane proteins in cpxA cpxB mutants of Escherichia coli K-12", <i>J Bacteriol</i> 154:(1):375-82 (April, 1983)					
	AR	Mengin-Lecreulx, D. et al., "Incorporation of LL-diaminopimelic acid into peptidoglycan of Escherichia coli mutants lacking diaminopimelate epimerase encoded by dapF", <i>J Bacteriol</i> 170:(5):2031-9 (May, 1988)					
VR	AS	*Mengin-Lecreulx, D. et al., "Identification of the glmU gene encoding N-acetylglucosamine-1-phosphate uridylyltransferase in Escherichia coli", <i>J Bacteriol</i> 175(19):6150-7 (October, 1993)					
VR	AT	Michalek, S., et al., "Antigen Delivery Systems: New Approaches to Mucosal Immunization," <i>Handbook of Mucosal Immunology</i> , 373-390 (Academic Press, Inc. 1994)					
VR	AR	Molin, S., "Conditional Suicide System for Containment of Bacteria and Plasmids," <i>Bio/Technology</i> , 5:1315-1318 (December, 1987)					
VR	AS	More, MI, et al., "Enzymatic synthesis of a quorum-sensing autoinducer through use of defined substrates", <i>Science</i> , 272:(5268):1655-8 (June 14, 1996)					
VR	AT	Moyed, HS, et al., "hipA, a newly recognized gene of Escherichia coli K-12 that affects frequency of persistence after inhibition of murein synthesis", <i>J Bacteriol</i> 155(2):768-75 (August, 1983)					
VR	AR	Munthali, M., et al., "Restricting the Dispersal of Recombinant DNA: Design of a Contained Biological Catalyst," <i>Bio-Technology</i> , 14(2):189-191 (February, 1996)					
VR	AS	Nakayama, K., et al., "Construction of an asd+ Expression-Cloning Vector: Stable Maintenance and High Level Expression of Cloned Genes in a Salmonella Vaccine Strain," <i>Bio/Technology</i> , 6:693-697 (June, 1988)					
	AT	*Peredel'chuk, Miu, et al., "[Cloning the asd and lysC genes from Corynebacterium glutamicum]", <i>Mol Gen Mikobial Virusol</i> (5-6):25-7 (May-June, 1992)					
VR	AR	Popham, DL, et al., "The Bacillus subtilis dacB gene, encoding penicillin-binding protein 5*, is part of a three-gene operon required for proper spore cortex synthesis and spore core dehydration", <i>J Bacteriol</i> 177:(16):4721-9 (August, 1995)					
VR	AS	Ramos, J., et al., "Suicide Microbes on the Loose," <i>Bio/Technology</i> , 13:35-37 (January 1995)					
VR	AT	Richaud, C, et al., "Molecular cloning, characterization, and chromosomal localization of dapF, the Escherichia coli gene for diaminopimelate epimerase", <i>J Bacteriol</i> 169(4):1454-9 (April, 1987)					
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VR	AR	Richaud, C, et al., "Regulation of expression and nucleotide sequence of the Escherichia coli dapD gene", <i>J Biol Chem</i> 259:(23):14824-8 (December 10, 1984)			
VR	AS	Rodriguez-Herva, JJ, et al., "The Pseudomonas putida peptidoglycan-associated outer membrane lipoprotein is involved in maintenance of the integrity of the cell envelope", <i>J Bacteriol</i> 178(6):1699-706 (March, 1996)			
VR	AT	Roten, CA, et al., "Genes involved in meso = diaminopimelate synthesis in Bacillus subtilis: identification of the gene encoding aspartokinase I", <i>J Gen Microbiol</i> 137:(Pt 4):951-62 (April, 1991)			
VR	AR	Rowland, SL, et al., "The Bacillus subtilis cell-division 135-137 degrees region contains an essential orf with significant similarity to murB and a dispensable sbp gene", <i>Gene</i> 164:(1):113-6 (October 16, 1995)			
VR	AS	Sahm, H, et al., "Construction of L-lysine-, L-threonine-, and L-isoleucine- overproducing strains of Corynebacterium glutamicum", <i>Ann N Y Acad Sci</i> 782:25-39 (May 15, 1996)			
VR	AT	Schaefer, AL, et al., "Generation of cell-to-cell signals in quorum sensing: acyl homoserine lactone synthase activity of a purified Vibrio fischeri LuxI protein", <i>Proc Natl Acad Sci USA</i> 93:(18):9505-9 (September 3, 1996)			
VR	AR	Schaefer, AL, et al., "Quorum sensing in Vibrio fischeri: probing autoinducer-LuxR interactions with autoinducer analogs", <i>J Bacteriol</i> 178:(10):2897-901 (May, 1996)			
VR	AS	Schodel, F., et al., "Development of Recombinant Salmonellae Expressing Hybrid Hepatitis B Virus Core Particles as Candidate Oral Vaccines," <i>Developments in Biological Standardization</i> , 82:151-158 Fred Brown, Ed. (Karger 1994)			
VR	AT	Schodel, F., "Hybrid Hepatitis B Virus core/Pre-S Proteins Synthesized in Avirulent Salmonella Typhi for Oral Vaccination," <i>Infect. Immun.</i> , 62:1669-1676 (1990)			
VR	AR	Schripsema, J, et al., "Bacteriocin small of Rhizobium leguminosarum belongs to the class of N-acyl-L-homoserine lactone molecules, known as autoinducers and as quorum sensing co-transcription factors", <i>J Bacteriol</i> 178:(2):366-71 (January, 1996)			
VR	AS	Schweder, T., et al., "An Expression Vector System Providing Plasmid stability and Conditional Suicide of Plasmid-Containing Cells," <i>Appl. Microbiol. Biotechnol.</i> , 38:91-93 (1992)			
VR	AT	Schweder, T., et al., "Escherichia Coli K12 relA Strains as Safe Hosts for Expression of Recombinant DNA," <i>Appl. Microbiol. Biotechnol.</i> , 42:718-723 (1995)			
VR	AR	Serebrijski, I, et al., "Multicopy suppression by asd gene and osmotic stress-dependent complementation by heterologous proA in proA mutants", <i>J Bacteriol</i> 177:(24):7255-60 (December, 1995)			
VR	AS	Sharma, UK, et al., "Expression and characterization of the ponA(ORF I) gene of Haemophilus influenzae: functional complementation in a heterologous system", <i>J Bacteriol</i> 177:(23):6745-60 (December, 1995)			
VR	AT	Shimkets, LJ, et al., "Induction of coordinated movement of Myxococcus xanthus cells", <i>J Bacteriol</i> 152:(11):451-61 (October, 1982)			
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VR	AR	Tinge and Curtiss, "Conservation of the Salmonella Typhimurium Virulence Plasmid Maintenance Regions Among Salmonella Serovars as a Basis for Plasmid Curing," <i>Infect. Immun.</i> 58:3084-3092 (1990)			
VR	AS	Tinge and Curtiss, "Isolation of the Replication and Partitioning Regions of the Salmonella Typhimurium Virulence Plasmid and Stabilization of Heterologous Replicons," <i>Journal of Bacteriology</i> 172:5266-5277 (1990)			
VR	AT	Vazquez, M., et al., "Controlled Expression of Click Beetle Luciferase Using a Bacterial Operator-Repressor System," <i>FEMS Microbiology Letters</i> , 121:11-18 (1994)			
VR	AR	Wachi, M, et al., "Sequence of the downstream flanking region of the shape-determining genes mreBCD of Escherichia coli," <i>Gene</i> 106:(1):135-6 (September 30, 1991)			
VR	AS	Walsh, CT, "Enzymes in the D-alanine branch of bacterial cell wall peptidoglycan assembly", <i>J Biol Chem</i> 264(5):2393-6 (February 15, 1989)			
VR	AT	Walsh, CT, "Vancomycin resistance: decoding the molecular logic", <i>Science</i> 261:(5119):308-9 (July 16, 1993)			
VR	AR	Yeh, P. et al., "General organization of the genes specifically involved in the diaminopimelate-lysine biosynthetic pathway of Corynebacterium glutamicum", <i>Mol Gen Genet</i> 212:(1):105-11 (April, 1988)			
VR	AS	Young, K, et al., "The envA permeability/cell division gene of Escherichia coli encodes the second enzyme of lipid A biosynthesis. UDP-3-O-(R-3-hydroxymyristoyl)-N-acetylglucosamine deacetylase", <i>J Biol Chem</i> 270:(51):30384-91 (December 22, 1995)			
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				FILING DATE December 6, 1996		GROUP	
U.S. PATENT DOCUMENTS							
*EXAMINER INITIAL	AA	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
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	AL						
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OTHER PRIOR ART (Including Author, Title, Date, Pertinent Pages, Inc.)							
VR	AR	<u>Contreras, et al., Appl. Microbiol. Biotechnol. 57(5), 1504-1508 (May 1991)</u> <i>Duplicate</i>					
	AS						
	AT						
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*EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE	
VR	AA 4,190,495	02/26/80	Curtiss	435	172		
VR	AB 4,968,619	11/06/90	Curtiss	435	252.8		
	AC 5,190,931	03/02/93	Inouye	435	91		
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FOREIGN PATENT DOCUMENTS							
	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
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	AL 0 381 706 B1	04/26/95	EP	—	—		
	AM						
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OTHER PRIOR ART (Including Author, Title, Date, Pertinent Pages, Etc.)							
VR	AR	Barrett, <u>Textbook of Immunology</u> , Fourth Edition (C. V. Mosby Co., St. Louis, MO, 1983) <u>Table of Contents</u>					
VR	AS	Blenkowska-Szewczyk et al., "The R Gene Product Of Bacteriophage A, Mol. Gen. Genet., 184:111-114 (1981)					
VR	AT	Bochner et al., "Positive Selection For Loss Of Tetracycline Resistance", J. Bacteriol., 143:926 (1980)					
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OTHER PRIOR ART (Including Author, Title, Date, Pertinent Pages, Etc.)							
VR	AR		Cárdenas and Clements, "Oral Immunization Using Live Attenuated <i>Salmonella</i> spp. as Carriers of Foreign Antigens", <i>Clinical Micro. Rev.</i> , 5(3):328-342 (1992)				
VR	AS		<del>Duplicate</del> <del>Cardineau and Curtiss, "Nucleotide Sequence Of The <i>asd</i> Gene Of <i>Streptococcus mutans</i>", <i>J. Bio. Chem.</i>, 262:3344-3353 (1987)</del>				
	AT		Chatfield et al., "Construction Of A Genetically Defined <i>Salmonella typhi</i> Mutant For The Engineering Of A Candidate Oral Typhoid-Tetanus Vaccine", <i>Vaccine</i> , 10:53-60 (1992)				
	AR		Chatfield et al., "The Development Of Oral Vaccines Based On Live Attenuated <i>Salmonella</i> Strains", <i>FEMS Immunol. Med. Microbiol.</i> 7:1-7 (1993)				
VR	AS		Christie, et al., "Synthetic Sites For Transcription Termination And A Functional comparison With Tryptophan Operon Termination Sites <i>In Vitro</i> ", <i>Proc. Natl. Acad. Sci. USA</i> , 78:4180-4184 (1981)				
	AT		Clements, "Use Of Attenuated Mutants Of <i>Salmonella</i> As Carriers For Delivery Of Heterologous Antigens To The Secretory Immune System", <i>Pathol. Immunopathol. Res.</i> 6:137-146 (1987)				
VR	AR		Cornelis, "Yersiniae, Finely Tuned Pathogens", <i>Molecular Biology of Bacterial Infections</i> (Cambridge University Press, Cambridge, 1992)				
VR	AS		Curtiss, "Engineering Organisms For Safety: What Is Necessary", <i>The Release Of Genetically-Engineered Micro-Organisms</i> , M. Sussman, et al. editor, Academic Press, 7-20 (1988)				
VR	AT		Curtiss, "Genetic Manipulation Of Microorganisms: Potential Benefits And Biohazards", <i>Ann. Rev.</i> , 30:507-533 (1976)				
VR	AR		Curtiss et al., "Research On Bacterial Conjugation With Mini-Cells And Minicell-Producing <i>E. Coli</i> Strains", <i>Microbial Drug Resistance</i> , 3:169-183 (1982)				
VR	AS		Curtiss and Kelly, "Salmonell Typhimurium Deletion Mutants Lacking Adenylate Cyclase And Cyclic AMP Receptor Protein Are Avirulent And Immunogenic", <i>Infect. Imm.</i> , 55:3035-3043 (1987)				
VR	AT		Curtiss et al., "Chromosomal Aberrations Associated With Mutations To Bacteriophage Resistance In <i>Escherichia Coli</i> ", <i>J. Bacteriol.</i> , 89:28-40 (1965)				
	AR		Curtiss et al., "Avirulent <i>Salmonella</i> Expressing Virulence Antigens From Other Pathogens For Use As Orally Administered Vaccines", <i>Virulence Mechanisms Of Bacterial Pathogens</i> , (Roth, American Society for Microbiology, Washington, D.C., 1988) pages 311-328				
VR	AS		Curtiss et al., "Recombinant <i>Salmonella</i> Vectors In Vaccine Development", <i>Dev. Biol. Stand.</i> , 82:23-33 (1994)				
VR	AT		Curtiss et al., "Stable Recombinant Avirulent <i>Salmonella</i> Vaccine Strains", <i>Adv. Exp. Med. Biol.</i> , 251:33-47 (1989)				
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OTHER PRIOR ART (Including Author, Title, Date, Pertinent Pages, Etc.)							
	AR		Curtiss, "Attenuated <i>Salmonella</i> Strains as Live Vectors for The Expression of Foreign Antigens", <i>New Generation Vaccines</i> (Woodrow and Levine, eds., Marcel Dekker, New York, 1990) pages 181-188				
	AS		Doggett and Curtiss, "Delivery Of Antigens By Recombinant Avirulent <i>Salmonella</i> Strains", <i>Adv. Exp. Med. Biol.</i> , 327:165-73 (1992)				
VR	AT		Dorman et al., "Characterization Of Porin And ompR Mutants Of A Virulent Strain Of <i>Salmonella typhimurium</i> ; ompR Mutants Are Attenuated In Vivo", <i>Infect. Immun.</i> , 57:2138-40 (1989)				
VR	AR		Dougan et al., "Live Oral <i>Salmonella</i> Vaccines: Potential Use Of Attenuated Strains As Carriers Of Heterologous Antigens To The Immune System", <i>Parasite Immun.</i> , 9:151-160 (1987)				
VR	AS		Dul et al., "Genetic Mapping Of A Mutant Defective In D, L-Alanine Racemase In <i>Bacillus Subtilis</i> 168", <i>J. Bacteriol.</i> , 115:1212 (1973)				
VR	AT		Ferrari et al., "Isolation Of An Alanine Racemase Gene From <i>Bacillus Subtilis</i> And Its Use For Plasmid Maintenance In <i>B. Subtilis</i> ", <i>Bio/Technology</i> , 3:1003-1007 (1985)				
VR	AR		Gait, ed., "Oligonucleotide Synthesis", A Practical Approach, (1984) (contents)				
VR	AS		Galan and Curtiss, "Virulence AND Vaccine Potential Of phoP Mutants Of <i>Salmonella typhimurium</i> ", <i>Microb. Pathogen.</i> , 6:433-443 (1989)				
VR	AT		Gentschev et al., " <i>Salmonella</i> Strain Secreting Active Listeriolysin Changes Its Intracellular Localization", <i>Infect. Imm.</i> , 63(10):4202-4205 (1995)				
VR	AR		Gerdes et al., "Mechanism Of Postsegregational Killing By the <i>hok</i> Gene Product Of The <i>parB</i> System Of Plasmid R1 And Its Homology With The <i>relF</i> Gene Product Of The <i>E. coli</i> <i>relB</i> Operon", <i>EMBO J.</i> , 5:2023-2029 (1986)				
VR	AS		Gerdes et al., "The <i>hok</i> Killer Gene Family In Gram-Negative Bacteria", <i>New Biol.</i> , 2:946-956 (1990)				
VR	AT		Gerdes et al., "Unique Type Of Plasmid Maintenance Function: Postsegregational Killing Of Plasmid-Free Cells", <i>Proc. Natl. Acad. Sci. USA</i> , 83:3116-3120 (1986)				
VR	AR		Germanier and Furer, "Immunity In Experimental Salmonellosis", <i>Infect. Immun.</i> , 4:663-73 (1971)				
VR	AS		Germanier and Furer, "Isolation And Characterization Of Gel/E Mutant Ty 21a Of <i>Salmonella typhi</i> : A Candidate Strain For A Live, Oral Typhoid Vaccine", <i>J. Infect. Dis.</i> , 131:553-8 (1975)				
VR	AT		Giladi et al., "Integration Host Factor Stimulates The Phage Lambda pL Promoter", <i>J. Mol. Biol.</i> , 231:109-121 (1990)				
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VR	AR		Glover, ed., "DNA Cloning", A Practical Approach, Volumes I and II (1985) (contents)				
VR	AS		Guzman et al., "Tight Regulation, Modulation, And High-Level Expression by vectors Containing The Arabinose PBAD Promoter", <u>J. Bacteriol.</u> , 177(14):4121-4130 (1995)				
VR	AT		Hames and Higgins, eds., "Nucleic Acid Hybridization", A Practical Approach (1984) (contents)				
VR	AR		Hecker et al., "Role Of relA Mutation In The Survival Of Amino Acid-Starved <i>Escherichia coli</i> ", <u>Arch Microbiol.</u> , 143:400-402 (1986)				
VR	AS		Helander et al., "Preferential Synthesis Of Heptaacyl Lipopolysaccharide By The <i>ssc</i> Permeability Mutant Of <i>Salmonella typhimurium</i> ", <u>Eur. J. Biochem.</u> , 204:1101-1106 (1992)				
VR	AT		Hess et al., "Superior Efficacy Of Secreted Over Somatic Antigen Display In Recombinant <i>Salmonella</i> Vaccine-Induced Protection Against Listeriosis", <u>Proc. Natl. Acad. Sci. USA</u> , 93:1458-1463 (1996)				
VR	AR		Hirvas et al., "Identification And Sequence Analysis Of The Gene Mutated In The Conditionally Lethal Outer Membrane Permeability Mutant SS-C Of <i>Salmonella typhimurium</i> ", <u>EMBO J.</u> , 10(4):1017-1023 (1991)				
VR	AS		Hoe et al., "Temperature Sensing In <i>Yersinia pestis</i> : Regulation Of <i>vopE</i> Transcription By <i>lcrF</i> ", <u>J. Bacteriol.</u> , 174:4275-4286 (1992)				
	AT		Hone et al., "A <i>galE</i> via (VI Antigen-Negative) Mutant Of <i>Salmonella typhi</i> Ty2 Retains Virulence In Humans", <u>Infect. Immun.</u> , 56:1326-1333 (1988)				
VR	AR		Hromockyi et al., "Temperature Regulation Of <i>Shigella</i> Virulence: Identification Of The Repressor Gene <i>virB</i> , An Analogue Of <i>hns</i> , And Partial Complementation By Tyrosyl Transfer RNA (tRNA <sup>Tyr</sup> )", <u>Mol. Micro.</u> , 6:2113-2124 (1991)				
VR	AS		Jagusztyn-Krynicka et al., "Expression Of <i>Streptococcus mutans</i> Aspartate-Semialdehyde Dehydrogenase Gene Cloned Into Plasmid pBR322", <u>J. Gen. Microbiol.</u> , 128:1135-1145 (1982)				
VR	AT		Johnson et al., "The Role Of A Stress-Response Protein In <i>Salmonella typhimurium</i> Virulence", <u>Mol. Microbiol.</u> , 5:401-407 (1991)				
VR	AR		Jones et al., "Induction Of Proteins In Response To Low Temperature In <i>Escherichia coli</i> ", <u>J. Bacteriol.</u> , 169:2092-2095 (1987)				
VR	AS		Kaniga et al., "A Wide-Host Suicide Vector For Improving Reverse Genetics In Gram-Negative Bacteria: Inactivation Of The <i>bla</i> A Gene Of <i>Yersinia enterocolitica</i> ", <u>Gene</u> , 109:137-141 (1991)				
	AT		Kelly et al., "Characterization And Protective Properties Of Attenuated Mutants Of <i>Salmonella choleraesuis</i> ", <u>Infect. Immun.</u> , 60:4881-4890 (1992)				
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VR	AR		Knudsen and Karlström, "Development of Efficient Suicide Mechanisms for Biological Containment of Bacteria", <i>Applied and Environmental Microbiology</i> , 57(1):85-92 (1991)				
	AS		Kushner, "Construction Of Versatile Low-Copy-Number Vectors For Cloning, Sequencing And Gene Expression In <i>Escherichia coli</i> ", <i>Gene</i> , 100:195-199 (1990)				
VR	AT		Lambert de Rouvroit et al., "Role Of The Transcriptional Activator, <i>VirF</i> , And Temperature In The Expression Of The pYV Plasmid Genes Of <i>Yersinia enterocolitica</i> ", <i>Molec. Microbiol.</i> , 6:395-409 (1992)				
VR	AR		Lieb, "Studies Of Heat-Inducible Lambda Bacteriophage", <i>J. Mol. Biol.</i> , 16:149-163 (1966)				
VR	AS		Luatzenberg et al., "Temperature-Sensitive Mutant Of <i>Escherichia coli</i> K-12 With An Impaired D-Alanine: D-Alanine Ligase", <i>J. Bacteriol.</i> , 113:96-104 (1973)				
VR	AT		McGhee and Mestecky, The Secretory Immune System, <i>Ann. N.Y. Acad. Sci.</i> , Volume 409 (1983) (Contexts)				
VR	AR		Miller, <i>Experiments In Molecular Genetics</i> (Cold Spring Harbor Laboratory, 1972)				
	AS		Miller et al., "A Two-Component Regulatory System (phoP phoQ) Controls <i>Salmonella typhimurium</i> Virulence", <i>Proc. Natl. Acad. Sci. USA</i> , 86:5054-8 (1989)				
VR	AT		Miller and Makalanos, "A Novel Suicide Vector And Its Use In Construction Of Insertion Mutations: Osmoregulation Of Outer Membrane Proteins And Virulence Determinants In <i>Vibrio cholerae</i> Requires <i>toxR</i> ", <i>J. Bacteriol.</i> , 170:2575-2583 (1988)				
VR	AR		Miller, <i>A Short Course In Bacterial Genetics</i> (Cold Spring Harbor Laboratory, 1992) (Contexts)				
VR	AS		Miyakawa et al., "Cell Wall Peptidoglycan Mutants Of <i>Escherichia coli</i> K-12: Existence Of Two Clusters Of Genes, <i>mra</i> And <i>mrb</i> , For Cell Wall Peptidoglycan Biosynthesis", <i>J. Bacteriol.</i> , 112:950 (1972)				
VR	AT		Molin et al., "Suicidal Genetic Elements And Their Use In Biological Containment Of Bacteria", <i>Annual Review of Microbiology</i> , 47:139-166 (1993)				
VR	AR		Molin and Killeberg, "Release of Engineered Microorganisms: Biological Containment and Improved Predictability for Risk Assessment", <i>AMBIO</i> , 22(4):242-245 (1993)				
VR	AS		Duplicate <del>Molin et al., "Conditional suicide system for containment of bacteria and plasmids", <i>Bio/Technology</i>, 5:1315-1318 (1987)</del>				
VR	AT		Munthali et al., "Use Of Colicin E3 For Biological Containment Of Microorganisms", <i>App. Environ. Microbiol.</i> , 62(5):1805-1807 (1996)				
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FORM PTO-1440

U.S. DEPARTMENT OF COMMERCE  
PATENT AND TRADEMARK OFFICE

## MATERIAL INFORMATION STATEMENT

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MEGAN 100CIP

SERIAL NO.

08/761,769

APPLICANT

Roy Curtiss, III and Steven A. Tinge

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VR	AR	Neidhardt et al., "The Genetics And Regulation Of Heat-Shock Proteins", <i>Annu. Rev. Genet.</i> , 18:295-329 (1984)
VR	AS	Nyström, "Role Of Guanosine Tetraphosphate In Gene Expression And The Survival Of Glucose Or Seryl-tRNA Starved Cells Of <i>Escherichia coli</i> K12", <i>Mol. Gen. Genet.</i> , 245:355-362 (1994)
VR	AT	O'Brien, ed., <i>Genetic Maps</i> (Cold Spring Harbor Laboratory, 1987)
VR	AR	O'Connor and Timmls, "Highly Repressible Expression System for Cloning Genes That Specify Potentially Toxic Proteins", <i>J. Bacteriol.</i> , 169:4457-4462 (1987)
VR	AS	Orsa et al., <i>Handbook of Mucosal Immunology</i> (Academic Press, San Diego, CA, 1994)
VR	AT	Perbal, <i>A Practical Guide To Molecular Cloning</i> , A Wiley-Interscience Publication (1984)
VR	AR	Poteste et al., "Operator Sequences Of Bacteriophages P22 And 21", <i>J. Mol. Biol.</i> , 137:81-91 (1980)
VR	AS	Poulsen et al., "The <i>gef</i> Gene From <i>Escherichia coli</i> Is Regulated At The Level Of Translation", <i>Mol. Microbiol.</i> , 5:1639-1648 (1991)
VR	AT	Qoronfleh et al., "Identification And Characterization Of Novel Low-Temperature-Inducible Promoters Of <i>Escherichia coli</i> ", <i>J. Bacteriol.</i> , 174:7902-7909 (1992)
VR	AR	Ramos et al., "Suicide Microbes on the Loose", <i>Bio/Technology</i> , 13:35-37 (1995)
VR	AS	Reader and Siminovitch, "Lysis Defective Mutants Of Bacteriophage Lambda: On The Role Of The S Function In Lysis", <i>Virology</i> , 43:623-637 (1971)
VR	AT	Reddy, et al., "Hyperexpression And Purification Of <i>Escherichia Coli</i> Adenylate Cyclase Using A Vector Designed For Expression Of Lethal Gene Products", <i>Nucleic Acids Res.</i> , 17(24):10473-10489 (1989)
VR	AR	Remaut, et al., "Plasmid Vectors For High-Efficiency Expression Controlled By The <i>pL</i> Promoter Of Coliphage Lambda", <i>Gene</i> , 15:81-93 (1981)
VR	AS	Remaut, et al., "Improved Plasmid Vectors With A Thermoinducible Expression And Temperature-Regulated Runaway Replication", <i>Gene</i> , 22:103-113 (1983)
VR	AT	Rennell and Poteste, "Phage P22 Lysis Genes: Nucleotide Sequences and Functional Relationships with T4 and $\lambda$ Genes", <i>Virology</i> , 143:280-289 (1985)

EXAMINER

V. R.

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7/98

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VR	AR		Sambrook et al., Molecular Cloning: A Laboratory Manual (Cold Spring Harbor Laboratory, 1989)		
VR	AS		Sanger et al., "Nucleotide Sequence Of Bacteriophage $\lambda$ DNA". J. Mol. Biol., 182:729-773 (1982)		
VR	AT		Sauer et al., "Primary Structure Of The Phage P22 Repressor And Its Gene c2". Biochem., 20:3591-3598 (1981)		
	AR		Schödel, "Oral Vaccination Using Recombinant Bacteria". Semin. Immunol., 2:341-349 (1990)		
	AS		Schödel, "Recombinant Avirulent Salmonellas as Oral Vaccine Carriers". Infection, 20(1):1-8 (1992)		
VR	AT		Schweder et al., "Escherichia coli K12 relA Strains As Safe Hosts For Expression Of Recombinant DNA". Appl. Microbiol. Biotechnol., 42:718-723 (1995)		
	AR		Sigwart et al., "Effect Of A purA Mutation On Efficacy Of Salmonella Live-Vaccine Vectors". Infection and Immunity, 57(6):1858-1861 (1989)		
VR	AS		Sitas et al., Basic and Clinical Immunology (Lange Medical Books, Los Altos, CA, 1994)		
VR	AT		Sizemore et al., "Attenuated Shigella As A DNA Delivery Vehicle For DNA-Mediated Immunization". Science, 270:299-302 (1995)		
VR	AR		Spector and Cubitt, "Starvation-Inducible Loci Of Salmonella typhimurium: Regulation And Roles In Starvation-Survival". Mol. Micro., 6:1467-1476 (1992)		
VR	AS		Studier et al., "Gene Expression Technology". Methods Enzymol., 185:60-89 (1990)		
	AT		Tacket et al., "Comparison Of The Safety And Immunogenicity Of $\Delta$ ava $\Delta$ cra Salmonella typhi Strains In Adult Volunteers". Infect. Immun., 60:536-541 (1992)		
VR	AR		Tanabe et al., "Identification Of The Promoter Region Of The Escherichia coli Major Cold Shock Gene, cspA". J. Bacteriol., 174:3867-3873 (1992)		
VR	AS		Tao and Blumenthal, "Sequence And Characterization Of puvIIIR, The PvuII Endonuclease Gene, And Of puvIIC, Its Regulatory Gene". J. Bacteriol., 174(10):3395-3398 (1992)		
VR	AT		Temple et al., "Survival Of Two Enterobacteria In Feces Buried In Soil Under Field Conditions". Appl. Environ. Microbiol., 40:794-797 (1980)		
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VR	AR		Umberger, "Amino Acid Biosynthesis And Its Regulation", Ann. Rev. Biochem., 47:533 (1978)				
VR	AS		Vasina and Benavx, "Recombinant Protein Expression At Low Temperatures Under The Transcriptional Control Of The Major <i>Escherichia coli</i> Cold Shock Promoter <i>cspA</i> ", Appl. Environ. Micro. 62(4):1444-1447 (1996)				
	AT		Vuorio and Vaara, "Mutants Carrying Conditionally Lethal Mutations In Outer Membrane Genes <i>omsA</i> And <i>fliA</i> (ago) Are Phenotypically Similar, And <i>omsA</i> Is Allelic To <i>fliA</i> ", J. Bacteriol., 174(22):7090-7097 (1992)				
VR	AR		Wisman, "The Characterization Of An Alanine Racemase Mutant Of <i>Escherichia coli</i> ", Genet. Res. Camb., 20:269-277 (1972)				
VR	AS		Wisman, "A Genetic Map Of Several Mutations Affecting The Mucopolysaccharide Layer Of <i>Escherichia coli</i> ", Genet. Res. Camb., 20:65-74 (1972)				
VR	AT		Yarrington et al., "Dual-Origin Plasmid Vectors Whose Origin Of Replication Is Controlled By The Coliphage Lambda Promoters PL", Gene, 28:293-300 (1984)				
VR	AR		Young, "Bacteriophage Lysis: Mechanism And Regulation", Microbiol. Rev., 56:430-481 (1992)				
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